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HW 3

1.

1. X -> $S0, Y -> $S1

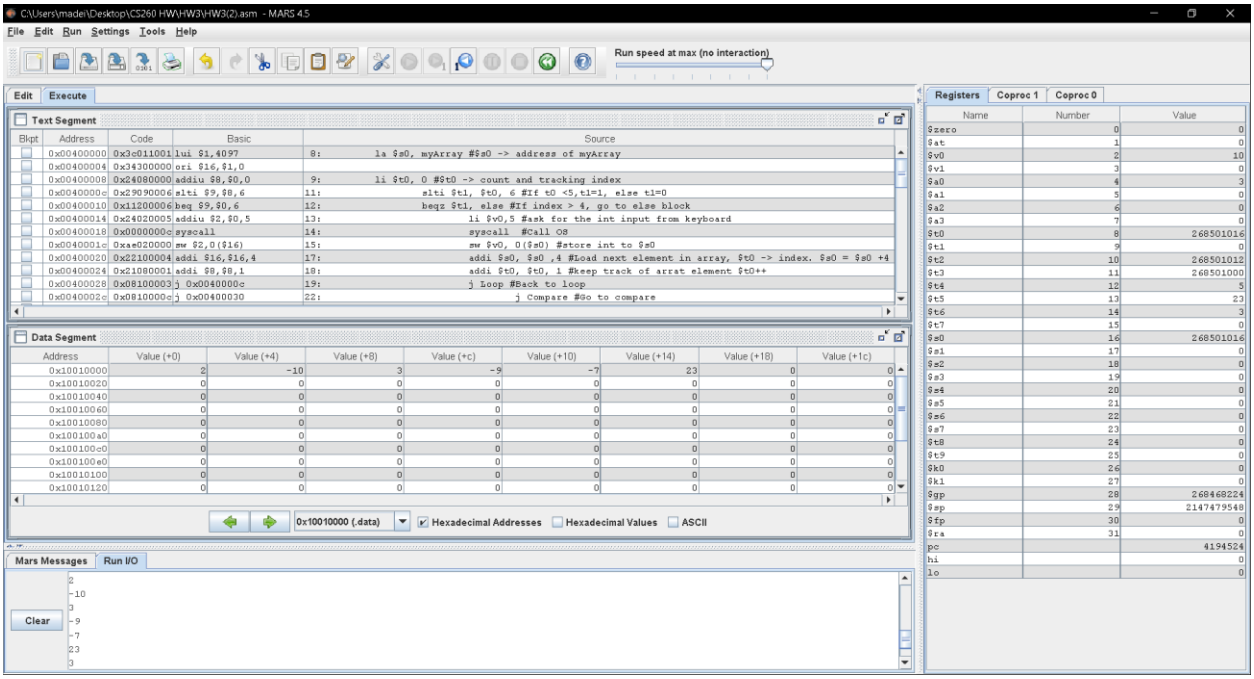
```
addi $S2, $S1, 5          #s2 = y+5
slt $t1, $S0, $S2         #If x< s2, t1 = 1, else t1 =0
beq $t1, $ZERO, else      #if x>y+5, go to else
    sub $S1, $S0, $S1     #y=x-y
    j EXIT                #go to exit
else:
    add $S0, $S0, $S1     #x=x+y
EXIT #Quit
```

2. X->$S0, Y->$S1

```
Loop:
    addi $S2, $S1,5       #s2 = y+5
    slt $t1, $S0, $S2     #if x< y+5, t1 = 1, else t1 =0
    beq $t1, $ZERO, else  #if x>y+5, go to else block
        EXIT              #if x<y+5, quit
    else:
        addi $S0, $S0, -1 #x--
        addi $S0, $S0, -1 #x--
        addi $S1, $S1, 1 #y++
        J Loop            #back to loop
```

3. X -> $S0, Y -> $S1

```
addi $S0, $ZERO, 1        #set x =1
Loop:
    sgt $t1, $S0, $S1     #if x>y, t1 = 1, else, t1=0
    beq $t1, $zero, else  #If x<y, go to else block
        Exit              #If x>Y, quit
    else:
        addi $S0, $S0, 5 #x=x+5
        addi $S1, $S1, 1 #y++
        addi $S0, $S0, 1 #x++
        j Loop
```

2. 

3. Since addi instruction works with 16 bits number, the smallest number for this instruction is: -32768.